

IN THE CLAIMS:

Please cancel Claims 1-9 without prejudice or disclaimer of the subject matter recited therein.

Please add new Claims 10-16 as follows.

1. to 9. (Cancelled).

10. (New) An image processing apparatus for composting an image of a virtual object and a physical space image to generate a mixed reality image and causing an HMD to display the mixed reality image, comprising:

a database which holds data used for generating the image of the virtual object;

an image capturing unit which is attached to the HMD and captures the physical space image;

a first measurement unit which measures a position and orientation of the HMD;

an object manipulation unit which is used by a user in order to operate a position and orientation of the virtual object;

a second measurement unit which measures a position and orientation of said object manipulation unit;

an operation panel which is positioned in a physical space, displays an operation panel image used for editing the virtual object, and is capable of receiving a user instruction of editing the virtual object;



an operation panel image generation unit which generates the operation panel image by using the data held in said database;

a rendering unit which updates the data held in said database according to the user instruction received via said operation panel and the measurement result of said second measurement unit, and renders, by using the updated data, the image of the virtual object according to the measurement results of said first and second measurement units;

a composition unit which composites the image of the virtual object rendered by said rendering unit and the physical space image captured by said image capturing unit to generate the mixed reality image; and

an HMD which displays the mixed reality image generated by said composition unit.

11. (New) The apparatus according to claim 10, wherein the image of the virtual object is generated on the basis of 3D CAD data of the virtual object, and said operation panel displays an assembly tree based on the 3D CAD data.

12. (New) The apparatus according to claim 11, wherein a part, which is obtained by enlarging a designated part of the assembly tree included in the operation panel image, includes a component name contained in the assembly tree.

13. (New) The apparatus according to claim 10, wherein said operation panel includes a display device and an operation device, wherein the display device displays the



operation panel image, and wherein the operation device is used for inputting the user instruction.

14. (New) The apparatus according to claim 10, wherein the HMD can present the mixed reality image to two eyes of a user who wears the HMD.

15. (New) An image processing method of composting an image of a virtual object and a physical space image to generate a mixed reality image and causing an HMD to display the mixed reality image, comprising the steps of:

holding data used for generating the image of the virtual object in a database;

providing an image capturing unit, which is attached to the HMD, to capture the physical space image;

measuring a position and orientation of the HMD with a first measurement unit;

operating an object manipulation unit, by a user, in order to position and orient the virtual object;

measuring a position and orientation of the object manipulation unit with a second measurement unit;

positioning an operation panel in a physical space to display an operation panel image used for editing the virtual object, the operation panel being capable of receiving a user instruction of editing the virtual object;

generating the operation panel image by using the data held in the database with an operation panel image generation unit;



updating the data held in the database according to the user instruction received via the operation panel and the measurement result of the second measurement unit, and rendering, by using the updated data, the image of the virtual object according to the measurement results of the first and second measurement units;

compositing the rendered image of the virtual object and the captured physical space image to generate the mixed reality image; and

displaying the generated mixed reality image on an HMD.

16. (New) A computer-readable storage medium encoded with a computer program for an image processing method of composting an image of a virtual object and a physical space image to generate a mixed reality image and causing an HMD to display the mixed reality image, comprising the steps of:

holding data used for generating the image of the virtual object in a database;

providing an image capturing unit, which is attached to the HMD, to capture the physical space image;

measuring a position and orientation of the HMD with a first measurement unit;

operating an object manipulation unit, by a user, in order to position and orient the virtual object;

measuring a position and orientation of the object manipulation unit with a second measurement unit;



positioning an operation panel in a physical space to display an operation panel image used for editing the virtual object, the operation panel being capable of receiving a user instruction of editing the virtual object;

generating the operation panel image by using the data held in the database with an operation panel image generation unit;

updating the data held in the database according to the user instruction received via the operation panel and the measurement result of the second measurement unit, and rendering, by using the updated data, the image of the virtual object according to the measurement results of the first and second measurement units;

compositing the rendered image of the virtual object and the captured physical space image to generate the mixed reality image; and

displaying the generated mixed reality image on an HMD.